CLAIM AMENDMENTS

- 1-16. (Canceled)
- 17. (Currently amended) A process for producing a catalytic converter, in which catalytically active material is deposited electrodeposited on a metallic substrate as a porous or non-cohesive layer, as a result of the substrate being immersed in an electrolyte which contains the catalytically active material and voltage being applied between the substrate and a counterelectrode, comprising:

depositing electrodepositing the catalytically active material on a on the metallic substrate, and applying substrate by applying an electric direct voltage, on which an alternating voltage is superimposed in such a way that the sign polarity of the sum voltage of the direct and alternating voltages does not change, between the substrate and the a counterelectrode.

- 18. (Previously presented) The process according to Claim
 17, wherein the direct voltage at least corresponds to the
 deposition potential of the catalytically active material.
- 19. (Currently amended) The process according to Claim 17, and further comprising providing the substrate, on its surface on which electrodeposition is to be coated occur, with a predetermined surface roughness prior to the deposition electrodeposition.

- 20. (Previously presented) The process according to Claim 19, wherein the surface roughness is in the range from 0.3 μm to 10 μm .
- 21. (Previously presented) The process according to Claim 17, wherein the catalytically active material is deposited as substantially spherical metal clusters as a result of the alternating voltage component being applied with a frequency of over 50 Hz.
- 22. (Previously presented) The process according to Claim 17, wherein the catalytically active material is deposited as substantially dendritic metal clusters as a result of the alternating voltage component being applied with a frequency of between 5 and 50 Hz.
- 23. (Previously presented) The process according to Claim 17, wherein the catalytically active material is a precious metal, a mixture of precious metals or catalytically active materials, or a mixture of precious metals and catalytically active materials.
- 24. (Currently amended) The process according to Claim 17, wherein said metallic substrate is a stainless steel substrate, and wherein the catalytically active material is deposited as substantially spherical platinum clusters are deposited on said stainless steel substrate from the electrolyte, the electrolyte

being a solution of a platinum compound in 0.1 M H₂SO₄ with a platinum content of approximately 0.1 g/l as a result of a modulated voltage, comprising the sum voltage which comprises said direct voltage, which has a magnitude of approximately 1.3 volts, superimposed with said alternating voltage, with a voltage swing of 0.3-1 volt and a frequency of 50-100 Hz, being applied between said stainless steel substrate and said counterelectrode Hz.

- 25. (Currently amended) The process according to Claim 17, wherein said metallic substrate is a stainless steel substrate, and wherein the catalytically active material is deposited as substantially dendritic platinum clusters are deposited on said stainless steel substrate from the electrolyte, the electrolyte being a solution of a platinum compound in 0.1 M H₂SO₄ with a platinum content of approximately 0.1 g/l as a result of a modulated voltage, comprising the sum voltage which comprises said direct voltage, which has a magnitude of approximately 1.3 volts, superimposed with said alternating voltage, with a voltage swing of 0.3-1 volt and a frequency of 5-15 Hz, being applied between said stainless steel substrate and said counterelectrodek Hz.
- 26. (Currently amended) The process according to Claim 17, wherein said metallic substrate is a stainless steel substrate, and wherein the catalytically active material is deposited as substantially dendritic rhodium clusters are deposited on said

stainless steel substrate from the electrolyte, the electrolyte being a solution of a rhodium compound in 0.1 M $\rm H_2SO_4$ with a rhodium content of approximately 0.2 g/l, as a result of a said of said direct voltage, which has a magnitude of 1.4-1.6 volt, applied between said stainless steel substrate and said counterelectrode, and said alternating voltage ($\rm V_{ac}$) with, which has a voltage swing ($\rm V_{PP}$) of 0.3-1.5 volts and a frequency of 5-15 Hz being, which is superimposed on said direct voltage.

- 27. (Previously presented) The process according to Claim 24, wherein the platinum clusters have sizes between 2 nm and 1 $\,\mu m.$
- 28. (Currently amended) The process according to Claim 17, wherein the counterelectrode is formed by platinum-coated from titanium which is coated by platinum.
- 29. (Previously presented) The process according to Claim 25, wherein the platinum clusters have sizes between 2 nm and 1 $\,\mu m\,.$